



MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES  
ONSITE SEWAGE PROGRAM  
**REGISTERED OWTS PROFESSIONALS CEU EXERCISE**

**Evolving a Rational Design Approach to Sizing Soil Treatment Units:  
Design for Wastewater Effluent Infiltration  
Questionnaire #109**

**May 2007**

**Expiration Date: March 31, 2008**

Subject to link availability

For Continuing Education Unit (CEU) credit, read the following publication and complete the questionnaire and return the completed questionnaire by either mailing to DHSS, Onsite Sewage Program, P.O. Box 570, Jefferson City, MO 65102, or faxing to 573-526-7377.	CEU	Installer	Inspector	OSE	Perc Tester
Small Flows Quarterly, Summer 2006 edition <a href="http://www.nesc.wvu.edu/nsfc/Articles/SFO/SFO_su06/Evolving.pdf">http://www.nesc.wvu.edu/nsfc/Articles/SFO/SFO_su06/Evolving.pdf</a>	3.0	✓	✓	✓	✓

**TOTAL – 3.0**

I, \_\_\_\_\_  
Last Name First Middle Initial

**Installer ID #** \_\_\_\_\_ **Inspector ID #** \_\_\_\_\_

**Soil Evaluator ID #** \_\_\_\_\_ **Percolation Tester ID #** \_\_\_\_\_

*have read the publication listed above and completed the following questions:*

\_\_\_\_\_  
Signature Contact Phone Number Date

1. Define:

a. Soil Treatment Unit (STU):

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b. Soil Infiltrability:

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2. What general soil attributes are needed to achieve tertiary treatment?

- a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_  
d. \_\_\_\_\_  
e. \_\_\_\_\_

3. Infiltration into a soil profile can be controlled at the soil infiltrative surface by:

or within the soil profile by: \_\_\_\_\_  
\_\_\_\_\_

4. What are the three key factors that have been reported to control infiltrability of domestic septic tank effluent (DSTE)?
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
5. What wastewater constituents are known to impact or determine the “strength” of the wastewater?
- a. \_\_\_\_\_
- b. \_\_\_\_\_
6. What happens to infiltrability with higher “strength” effluents?
- \_\_\_\_\_
7. What is the relative effect of “continuity of use” on the STU? (Hint use Table 1)
- \_\_\_\_\_
- \_\_\_\_\_
8. Table 4 separates effluent quality into three types based on the treatment achieved. Discuss what happens with the hydraulic loading rate based on the three effluent types and the three soil classes.
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
9. What is sequential application, when or why would it be used, and how long of a resting cycle is needed to help rejuvenate the hydraulic capacity of the infiltrative surface?
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
10. Using Table 6 summarize how effluent distribution can affect design criteria.
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
11. Refer to Table 3, knowing that Missouri soil classes (groups) include textures as follows:
- IVa – sandy clay, silty clay and clay (low and moderate shrink-swell)
- IVb – sandy clay, silty clay, clay, silty clay loam and clay loam (high shrink-swell)
- V – skeletal textures (greater than 35% rock fragments):
- a. Does Table 3 cover all soils found in Missouri? (circle one) Yes No
- b. Do you think the HLR for Soil Class IVb should be higher or lower than for Class III? (circle one)
- Higher Lower
- c. Do you think the HLR for Soil Class V should be higher or lower than for Class III? (circle one)
- Higher Lower

**#109** \_\_\_\_\_  
Last Name First Middle Initial ID Number

Please complete and return this sheet only if you want #109 answers sent to you (after exercise is taken offline).

Email Address \_\_\_\_\_

Fax Number \_\_\_\_\_

If fax number is not available, confirm your mailing address:

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_